Application No. 10/035,377
Amndt. dated: May 26, 2006
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This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (currently amended)   A method of controlling a network boot for a plurality of client devices linked to a data communications network including a linked network server and a network storage device, comprising:

receiving at the network server a boot request from one of the client devices over the network;

responsive to the received boot request, ~~determining~~ selecting a target boot volume allocated to the requesting client device from a plurality of client-specific image copies stored at the network storage device ~~each of the client image~~;

~~copies including a boot image particular to one of the client devices linked to the network; and~~

providing communicative access to the requesting one of the client devices to the selected target boot volume stored at said network storage device, whereby the client is operable to remotely boot over the network from the selected target boot volume ~~stored at said network storage device~~ without downloading the selected target boot volume to local storage at the requesting client device; and

said requesting client device updating its allocated client-specific boot image by creating an image block unique to the requesting client device whereby each of the client-specific images comprises at least one boot image block common to all of the plurality of client devices and at least one boot image block particular to that client device.

2. (currently amended)   The method of Claim 1, further including creating a snapshot of a base boot image and creating initial ~~the~~ client-specific image copies by copying the snapshot for each of ~~the~~ said plurality of client devices linked to the network.

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3. (currently amended)   The method of Claim 2, wherein the base boot image includes an image of operating system and application files to be initially shared among the client devices.

4. (original)   The method of Claim 2, wherein each of the client image copies is allocated to a particular one of the client devices and includes common operating system (OS) and application blocks comprising a reverse snapshot of the base boot image and client-specific blocks unique to the particular one of the client devices.

5. (original)   The method of Claim 4, further including receiving an update from a client device over the network and modifying the client-specific blocks based on the received update in the client image copy allocated to the updating client device.

6. (original)   The method of Claim 5, wherein the received update comprises a write that is processed as an allocate-on-write.

7. (currently amended)   The method of Claim 2, further including storing the snapshot of the base boot image in the network storage device and adding a new one of the client devices to the network including repeating, with the previously stored snapshot, the creating of the a client-specific image copyies for the new client device.

8. (original)   The method of Claim 1, wherein the network is an Internet protocol (IP) based network.

9. (currently amended)   An external storage controller for managing network booting within a storage communication network including a linked server and a network storage device, comprising:

a snapshot manager adapted for creating a snapshot of a base boot image, for storing the base boot image in said network storage device, for creating and storing in the network storage device a reverse snapshot based on the base boot image snapshot for client devices in the network, and for allocating one of thea reverse snapshots to

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each respective ones of the client devices as a client-specific image copies copy for that client device; and

said server to receive a boot request from a client device broadcast on the network and responding to the boot request by providing remote access to a the client-specific image copy stored in the network storage device allocated to the requesting client device to effect a remote boot operation by the requesting client device without downloading said client-specific image copy to local storage at the requesting client device;

said controller operating to update a client-specific image stored at said network storage device that is allocated to a particular client device by creating a new image block unique to that client device based on updating information received from that client, whereby each client specific-image comprises at least one boot block common to a plurality of said client devices and at least one boot block unique to that client-specific device.

10. (original) The controller of Claim 9, further including means for determining based on the boot request the client-specific image copy to provide the requesting client device access.

11. (currently amended) The controller of Claim 9, wherein the base boot image includes an operating system and application files image and wherein each of the client-specific reverse snapshots includes the common operating system and application files image and a the at least one boot block image unique to that client device. specific information portion.

12. (original) The controller of Claim 11, wherein the client-specific information is alterable during operation of the controller.

13. (currently amended) The controller of Claim 12, wherein the snapshot manager is adapted to apply writes received from a particular client device by the server as writes to the client-specific information portion of a client-specific image copy allocated to the particular client device.

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14. (currently amended)   A computer system for deploying multiple client devices communicatively linked to a network including a linked server and a network storage component, comprising:

a plurality of client components that send boot requests over the network;

a snapshot component that creates a base boot image comprising an operating system and application files image, and creates client-specific image copies from the base boot image for each allocated to respective ones of the client components;

said network storage component to store the client-specific image copies; and

said server including a communication component that receives the boot requests from the client components and in response to a boot request from a client component provides the requesting client components-component with remote access to the client image copies on the network storage component, including access to effect a remote boot from a the boot image copy allocated to a the requesting client component without transferring the client-specific image copy to local storage at the requesting client component:

said server operating to update client-specific images stored at said network storage device, by a write from a client component to create a new client-specific image block unique to that client component, whereby each client specific-image comprises at least one boot block common to a plurality of said client components and at least one boot block unique to that client-specific component.

15. (original) The system of Claim 14, wherein the network is an Internet protocol (IP) based network and the client components include initiators to encapsulate the boot requests in TCP/IP.

16. (original) The system of Claim 14, wherein the client components perform equivalent functions based on the operating system and application files image.

17. (currently amended)   The system of Claim 14, wherein the communication component further determines an allocated one of the client-specific image copies for each allocated to respective ones of the client components that

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broadcast the boot requests and provides remote access ~~to the~~by a requesting client ~~component~~ components only to the client-specific image allocated ~~ones determined~~ ~~associated~~ to ~~each of~~the requesting client ~~componentcomponents~~.

18. (original)   The system of Claim 14, wherein the client components further transmit information update messages on the network and the snapshot component further independently modifies the client image copies corresponding to the transmitting ones of the client components, whereby each modified one of the client image copies differs from other ones of the client image copies.

19. (original)   The system of Claim 18, wherein the network storage component includes for each client component, ~~image copies include~~ a storage area for storing information from the base boot image common to said plurality of client components and a storage area for storing information from the information update messages received from that particular client component.

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